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MEDICAL EVALUATION OF SPEECH SERVICES*

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The more I have read and studied speech, speech handicaps and speech development, seeking specifically the medical factors, the more I have realized that actually there are no guides which establish for us the discrete boundaries between the medical and the educational aspects of this problem. I interpret this lack of clarity as being evidence that both disciplines, education and medicine, have come to recognize and to respect the unity of the child and have, therefore, been reluctant to undertake intensive investigation or treatment totally within the confines of a single discipline. Perhaps it is also that more recently we have begun to see the relationship of speech to language and language to the total behavior pattern, and that these together may well form a single unit in the developmental process of the child.

This unity is maintained by means of a balanced interaction of many forces. It is the product of a delicate, harmonious and almost magical relationship among these factors. Some of these are anatomical in origin, some are physiological, and still others are basically psychological. When there is a breakdown in any one of these areas, whether due to pre-natal or post-natal injury, the child strives for that adjustment which will reestablish and then maintain unity. In doing so he exhibits symptoms and signs which we must learn to read. Essentially, the problems which con-

front us are these: Where is the break? How has it affected the other factors, and what specific form of treatment will assist the child in his striving for unity?

Need for a Joint Approach

It seems obvious now that if the child is to be helped in maintaining the balance and unity so necessary for his step-by-step development, then the services must likewise be balanced and unified. But if we look back over the past decade, the area of speech and language development has been almost a "No Man's Land" separating the two major disciplines, with more activity, interest and investigation in education than in medicine. It seems that here, as in cerebral palsy, we are gradually coming to the realization that if treatment is to be effective, it must come through a joint approach and through a combination of the skills and knowledge of the various disciplines, but primarily of medicine and education.

Medicine has long preferred to build medical schools away from the university campus. But this is changing, and at least two of our medical schools, feeling the need for a working relationship with the other academic fields, are developing on the university campus. This is very encouraging and hopeful. It is even more encouraging, although not surprising, to find that the voluntary agencies, and especially the Crippled Children's Society, have already taken steps toward bringing together these fields of interest and knowledge.

The trends we see occurring in many areas may be the beginning of our joint efforts towards a better understanding of the needs of these children and need for the development of unified services.

The Speech Problem

I should like to tell you of the problem of speech as we experience it in Crippled Children Services and then to discuss those areas where I believe our efforts now would prove productive. I do this with the full knowledge that impending research, jointly approached, will eventually bring new concepts and new methods for both prevention and treatment.

First, we are all in agreement that the ability to communicate through vocal speech is, in our society, an essential. It was significantly pointed up in the report, "Opportunities Limited," of your own California Society for Crippled Children and Adults that inadequate speech was the major obstacle in employment of the applicant with cerebral palsy. It would be an easy matter to recite a number of instances where intelligible speech is a decisive factor, not only in employment but in the enjoyment and pleasure of everyday life. But, suffice it to say, speech is tremendously important in final evaluation of each child's individual capacity for full and independent living.

We accept this fully in Crippled Children Services; but despite this conviction we have been unable to provide services in the form of diagnosis and treatment which will assure

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adequate speech. This is even more difficult to explain since, in our immediate responsibilities, we are limited to that inadequacy of speech associated with the distortion of anatomical structure, such as cleft palate; with disorganization of the physiology of nerve impulses, as in cerebral palsy; and some diagnostic services in the determination of deafness. We could say that our lack of success has been due to the paucity of speech therapists in California. An actual shortage of trained therapists does exist, but I do not believe we can rest comfortably on this explanation and for these reasons:

In those areas where speech therapists are available, I become uneasy when I hear them say repeatedly in case after case that there is no anatomical reason why this child does not have normal speech. On the other hand, I am equally mystified when I have an experience such as the one I had a few weeks ago at a Cleft Palate Conference. Here a plastic surgeon was presenting his case of an 11-year old. After his examination of the mouth and palate, he said, "This boy will show nasality in his speech because he has a short soft palate. We will schedule him for a 'push back'." But when the surgeon began to ask the routine questions designed to bring out the speech defects, much to his surprise and my befuddlement, the boy spoke, and he spoke clearly, without effort and without nasality!

In neither of these situations could the adequacy of speech be correlated with the anatomical structure, whether this be good or bad. Furthermore, there is a plastic surgeon working with cleft palate children in another state who reports excellent results, including good speech, but he does not use any speech therapists. I was unable to ascertain the secret of his success. I feel that he attributes it to his surgical techniques, but of this I am not convinced because others who have tried his methods have been unable to repeat his results. We must look elsewhere for the answer. Perhaps we shall find it if we shift our approach somewhat and consider speech in relation to language, and language in relation to behavior, behavior here meaning *actions* representing feelings, concepts, and values.

Thus language becomes the crucial point.

Strauss approaches the problem by considering language as primarily an auditory system of symbols, and, in so far as it is articulated, it is also a motor system. But he believes that the motor aspects of speech are clearly secondary to the auditory. Myklebust takes this a little further and divides language into three categories: (1) expressive language (speaking and writing); (2) inner language (thinking and verbal imagery); and (3) receptive language (reading and hearing).

The normal progression of development in a child must be first receptive language (hearing), then inner language, and finally expressive language. We see, then, that speech is dependent upon the normal, orderly development of the other phases. So that in any given child who has inadequate speech, one must consider the possible location of the disorder. Is it in the area of reception—an acuity of hearing? Is it in the inner language—an inability to correlate and associate auditory sensations? Or is it in the area of expression, involving a disturbance of the organs of speech—the tongue, palate, lips, and so forth?

Let us turn now to a less theoretical discussion and, with this as a background, consider some of the problems we see in the so-called speech handicapped. We know of the deaf child, or the severely hard-of-hearing, who does not develop speech without special training. The educators have developed successful methods of training these children.

We know of the child with cleft palate, with gross distortion of the anatomical relationship of the palate, teeth and the lips. The surgeons have developed techniques which often seem like miracles, and often with a final satisfactory realignment of these structures.

We know of the cerebral-palsied child who lacks that split-second coordination of the muscles of the tongue, lips, pharynx and thorax, which are basic to proper breathing, swallowing, chewing and speech.

We know of the mentally retarded child who has a speech problem because of the inadequacy of the brain cells.

At first glance, it would appear that these defects fall into sharply defined categories; that the diagnosis is easy, obvious and specific, and effective treatment techniques can be applied. We can assure the parents that all is well and that good speech can be anticipated. In many cases, this is just what happens.

But there are some children who do not respond according to the rule. Unfortunately the number of these has now grown so that many thoughtful and observant teachers, therapists, physicians and even administrators, are doubting—not the treatment, which is effective in many cases—but the diagnosis. In the area of the deaf and hard of hearing—since Crippled Children Services provides diagnostic services, we are receiving a disturbing number of requests from welfare agencies and classes for the deaf for additional diagnostic services. Does this child have psychogenic deafness? Is this an aphasic? Is this a brain-injured child?

Recently we were involved with one six-year-old child who was discharged from a school for the deaf as unmanageable. But when this child's parents resolved some of their own problems, he could be admitted to regular school. Currently he has adequate speech and is complaining bitterly because there is too much noise in the classroom. I wish they were all as easy.

Myklebust analyzed 228 consecutive cases referred to the Chicago Speech and Hearing Center for inadequate speech development. He found that: 45 percent had peripheral deafness; 29.4 percent were aphasic; 15.8 percent had psychic deafness; and 9.2 percent were mentally retarded.

Is this unintelligible speech in a child with his repaired cleft palate due to the inadequate reconstruction of the palate or to developmental and emotional forces? We had such a case, only this week, in a cleft palate conference with all disciplines represented. This case was referred for consultation from a rural area. The local therapist and teachers believed that more surgery was absolutely essential to further progress. The conference members, the surgeons, the pediatricians and the speech thera-

pists finally decided that the speech problem arose from environmental or emotional factors, that it was articulatory and not structural in origin.

The Cerebral-Palsied Child

The cerebral-palsied child who has speech involvement is an even more difficult diagnostic problem; for here is a child known to have a brain injury which results in motor incoordination. What are the factors involved in this speech problem? These are the possibilities: (1) reduced hearing acuity; (2) distortion of auditory perception due to brain damage; (3) distortion of association—in the development of inner language; (4) possible mental retardation; and (5) lack of muscle coordination.

Recent studies, as yet unpublished, indicate that at least 30 percent of the children admitted to a nursery school for mental retardation, many of whom have "delayed speech," have been found to be retarded because of emotional factors, not brain injury or developmental failure.

Once the location has been determined, we must ask ourselves and decide whether this is due to scarred brain tissue or to emotional insult and injury. Once this determination has been made, if multiple factors are involved, the relative importance of each must be decided. Then and then only, can rational, definitive treatment be properly outlined and initiated. This, to be sure, requires detailed diagnostic investigation. Such investigation cannot be done by one person, and I am of the firm conviction that it cannot be done by separate tests, in separate offices, of separate specialists, whether these specialists be in education or medicine or both. I believe we shall come closer to an accurate evaluation only when these specialists sit around a table, thoroughly discuss the problem, and arrive at a decision.

Need for Diagnostic Evaluation

The problems surrounding a child with inadequate speech are far too complex to be resolved by the old-fashioned method of examination and written report. I am sure this method befuddles the teacher and the speech therapist as much as it does the administrator of the Crippled Children Services' program. These complex problems require investigation in de-

tail by various medical and educational specialists, by social workers, by clinical psychologists, by speech therapists and by audiologists. But equally essential is a coordinated opinion with specific recommendations, and a means by which these recommendations can be carried out. The latter may be the responsibility of the parent or the agency providing services for the child.

I am under no illusions as to the extent of our present knowledge, nor our current ability to make a proper differential diagnosis and evaluation. This does not mean that it is an unrealistic objective. The first step is our own conviction that such a differential diagnosis and evaluation is essential to effective treatment, and the next step is to apply the knowledge which we now possess. There are now fairly accurate tests for auditory acuity, and for differentiating peripheral from psychic deafness. There has been some advance in the understanding of disturbance of visual perception, and this may well open the door to investigations in the problems of auditory perception. There are feeble beginnings toward the comprehension of the process involved in the development of inner language, in the process of thinking and its relation to verbal imagery. Equally important, we are beginning to understand the needs of the child in terms of growth, in terms of the child's own reaction to the emotional environment in which he finds himself, and in which each must establish and maintain his unity of personality as a basis for his own self respect—or knowledge of his own worth.

All this really means is that a diagnostic evaluation should, and indeed must, precede treatment. Should there be a gradual development of such a requirement by the therapists working in voluntary agencies or in schools, it would be possible (at least for these children in the Crippled Children Services' program) to meet such an expressed need through facilitating the development of diagnostic groups.

The Factor of Timing

The next question which inevitably follows concerns the timing of the diagnosis and the treatment. At what point in the child's development should all of this take place? Here the "professionals" are at a disad-

vantage, at least in some cases, and particularly in those instances where there is no visible anatomical distortion—as in cleft palate, or early evidence of muscle incoordination of cerebral palsy. Too often there is little suspicion that spontaneous speech will not develop at the usual age, even though the seeds for inadequate speech are present in the early weeks or months of life. There are signs which we either overlook or do not properly interpret.

Here the physician, who is often the first consulted by the parents, has not as yet taken advantage of this opportunity for early preventive services—services which will guide the parents in their efforts and play with the child. I suspect that in this early period the services should be to the parents and not primarily to the child. Here a pediatrician whose practice can be so organized as to permit frequent and leisurely discussion with the parents and a social worker, might, together with them, provide invaluable assistance. I believe that such assistance during the developmental period would considerably reduce the degree of the speech handicap, and I look forward to the day when such a demonstration project will be undertaken.

The place for such a setting should be in a metropolitan area where there would be 50 newborn cleft palate cases in a year. The services would consist of a pediatrician or child psychiatrist, a social worker, and probably other specialists occasionally called in consultation. This core staff would have office hours as frequently as needed, discussions with the parents to assist in their relationship, activities and home therapy of the child. Only parents with newborn cleft palate babies would be accepted for service. The usual medical and surgical care would be carried on in the usual manner.

And after two or three years, speech development would be evaluated.

Such a study might prove or disprove my feeling that the early emotional environment of the child determines the extent of the speech handicap.

We could use the speech therapist thus released in other situations.

Summary

I would like to re-emphasize in summary those points where a joint approach offers real hope for success:

First, is what I have called the preventive service: the assistance for the parents as soon as it is suspected or known that the child will have difficulties in speech. And this, no matter what the age of the child, whether he be an infant or an adolescent.

Second, long-term investigation into the development and function of language, and thus of speech.

Third, the immediate development of diagnostic and evaluation groups to determine the possible causal factors in children currently troubled by speech defects.

Fourth, the reassessment of treatment methods in the light of these diagnostic studies and the development of new methods to be carried out by the appropriate disciplines—physician, teacher, therapist, psychologist and social worker.

Inadequate speech is a serious handicap and represents a major challenge. It warrants the attention of the most highly skilled professional staff in each field, and I believe we have now grown enough in our own fields to undertake a joint approach. Others are beginning to work alongside the pioneers—the educators, the therapists and the psychologists. I look forward to the time when, through these joint efforts, the children will experience the comfort and the joy which can come only through free and easy communication.

Health Officer Changes

Robert J. Carson, M.D., has been appointed Health Officer of Lassen County to succeed Allen E. Priest, M.D. Dr. Carson's appointment was effective September 1, 1956. Offices of the county health department are located at 1819 Main Street, Susanville.

The rate of deaths from home accidents decreased 40 percent from 1928 to 1955.—*Home Safety Review*, Vol. 13, August 1956.

It is estimated by WHO that there are 12,106 persons in the world affected with leprosy.—*This Week in Public Health*, Vol. 5, No. 38.

Eight Outbreaks of Food Poisoning Reported

Eight outbreaks of food poisoning, in which the suspected etiological agent was staphylococcus, were reported recently to the State Department of Public Health. Three occurred in labor camps, two in school cafeterias, and one each in a private residence, hospital and restaurant.

Two of the outbreaks in labor camps occurred five days apart in the same camp; 100 of 109 and 102 of 105 persons eating the meal became ill. The third outbreak, at a different camp, involved 60 of 140 persons eating. In all three cases there was an explosive onset of symptoms. Investigators were unable to determine the source or vehicle of the outbreak.

Potato salad and meat loaf were the suspected foods in the two outbreaks which occurred in schools. The first involved 52 cases of the 115 eating the noonday meal; the second, 87 known cases of 247 eating the meal.

In the outbreak which occurred in a private residence, 18 of the 21 persons eating the meal became ill. One person 73 years of age "almost died of shock and dehydration" and seven persons required hospitalization following the attack. Laboratory examination established that ham stored at room temperature in excess of 24 hours and transported from another city by automobile was heavily infected with staphylococcus aureus.

The hospital outbreak affected 37 of the 46 persons eating the meal. Ham and chopped turkey sandwich was the suspected food; laboratory examination showed that both the ham and turkey were contaminated with staphylococcus. The ham, after cooking, remained at room temperature overnight. The turkey had originally been served for lunch the day before and was not placed under refrigeration until five hours after serving.

Twenty-four persons out of a total of 200 were stricken with typical food poisoning symptoms following a banquet in a restaurant and 15 were hospitalized. Tamales were the suspected food. Pork, used in the preparation of the tamales, stood at room temperature for over three hours before being placed under refrigeration.

SPECIAL CENSUS RELEASES

Special Censuses of California Cities, **Series P-28**. *Del Norte County*: Crescent City (896); *Humboldt County*: Fortuna (896); *Los Angeles County*: Claremont (925); Palos Verdes Estates (896); *Sierra Madre* (925); *Marin County*: Larkspur (896); *Merced County*: Livingston (925); *Orange County*: Brea (925); *Placentia* (925); *Placer County*: Auburn (896); *Riverside County*: Coachella (925); *Santa Clara County*: Gilroy (896); *Santa Cruz County*: Capitola (925); *Solano County*: Vacaville (925); *Sutter County*: Live Oak (925); *Ventura County*: Fillmore (925); Ojai (925).

Special Censuses conducted by the Bureau of the Census between April 1 and June 30, 1956. Bureau of the Census, **Series P-28**, No. 925, August 17, 1956.

Fertility by Duration of Marriage, 1950 Bureau of the Census, 1950 Census of the Population, **Series PC-14**, No. 22, September 7, 1956.

Provisional Estimates of the Population of the U. S., January 1, 1950, to August 1, 1956, Bureau of the Census, **Series P-25**, No. 142, September 14, 1956.

Special Censuses conducted by the Bureau of the Census during 1955, Bureau of the Census, **Series P-28**, No. 926, September 12, 1956.

Projections of the Number of Household and Families, 1960-1975, Bureau of the Census, **Series P-20**, No. 69, August 31, 1956.

Copies of these releases may be obtained from: Library, Bureau of Foreign and Domestic Commerce, United States Department of Commerce at 419 Customs Building, 555 Battery Street, San Francisco, or at Room 450, 1031 South Broadway, Los Angeles.

In ordering, specify series and number as shown in parentheses. These numbers are not population figures.

Leprosy Control Program for California in Fourth Year

Leprosy, a disease which in the past carried a connotation of hopelessness and stigma, in which the patient was subjected to rigid isolation, has undergone considerable re-evaluation in the past several years.

Today, most experts agree that many people with the noninfectious type of leprosy can lead normal lives in their own community, that treatment in special hospitals is recommended only for those cases which have been diagnosed as infectious and that with modern methods of therapy rigid isolation for the noninfectious patient is both undesirable and unrealistic.

While leprosy is not a major public health problem from the standpoint of incidence, the continued occurrence of cases requires public health action. New cases occur in California at the rate of approximately 15 per year; most of which are acquired outside of the United States.

In 1952 the State Department of Public Health revised its leprosy control activities to bring them into conformity with present knowledge and practices. The U. S. P. H. S. at that time changed its admission policies at Carville limiting admissions to the facility to the following categories: Lepromatous or infectious, indeterminate and those patients who have disabilities resulting from the disease which require special surgical treatment. Patients with tubercloid or noninfectious leprosy, arrested, or inactive cases are no longer accepted for admission by the U. S. P. H. S. at Carville.

The chief elements of the leprosy control program, developed in 1952 by the State Department of Public Health under the direction of Herman Gray, M.D., were case finding, case management, case surveillance, contact surveillance and medical and public education. As a part of the program a central leprosy registry has been developed in the State Department of Public Health which contains histories of every living reported case of leprosy in California since 1924; the year the leprosarium at Carville was opened, at which time all known California leprosy patients

were transferred to the federal facility. Because the disease is still feared by the public it is assumed that there are persons with leprosy who are not known either to the State Department of Public Health or the local health department. See table below for summary of leprosy cases reported in California from 1920 to 1956.

Leprosy (Hansen's Disease) Reported Cases and Deaths 1920-1956 (Jan.-Sept.)

Year of Report	Number of cases	Number of deaths ¹
1920-29	213	61
1930-39	144	46
1940-49	118	24
1950-56 (Jan.-Sept.)	96	2

¹ 1920-1956—These 133 known deaths are tabulated according to the year the cases were reported. Of the 571 cases reported, 133 are known to have died. This information for those cases reported in persons who have left the United States, is not available.

Of the 571 cases reported since 1920, the records have been reviewed and available information abstracted. The leprosy registry records have been completed for the 214 reported since 1940. The whereabouts of those patients as indicated from data received to date are as follows:

1. Patients at Carville.....	35
2. Patients in California.....	77
3. Patients left the United States....	63
4. Patients died	26
5. Whereabouts unknown	13

The program is a cooperative endeavor of the United States Public Health Service, California State Department of Public Health and local health departments for the purpose of coordinating leprosy control activities, establishing control measures including medical supervision, assisting leprosy patients and their families in social and economic adjustments, alleviating the unrealistic traditional attitude toward leprosy and collecting epidemiological data which will provide the basis for improved control measures and evaluation of their effectiveness.

Special consultants, appointed by the State Board of Health, to the department in the program are two clinical specialists: Paul Fasal, M.D., of San Rafael for Northern California, and Maximilian E. Obermayer, M.D., of Los Angeles for Southern California.

Department's Personnel Officer Killed in Air Accident

Publication of the department's biennial report as a special edition of *California's Health* November 15th precluded the announcement until this issue of the untimely death of Mrs. Marguerite Morgan, Personnel Officer for the department, and her husband, James Morgan, a California highway patrolman, in an air accident October 5th. Mr. and Mrs. Morgan were killed when their light plane crashed in the coastal range hills near Patterson.

The Morgans, on vacation, were en route to Long Beach to attend a California Highway Patrol convention. They had planned to continue on to Montana for a hunting trip. From what authorities could reconstruct, the plane had crashed approximately 12 days before being located October 17th by search parties. First concern over the Morgans' whereabouts was expressed when Mrs. Morgan did not return from vacation. The department notified the Highway Patrol and an air search by the Civil Air Patrol was instigated.

Mrs. Morgan had been with the department for 11 years and in state service since 1926.

Rural Health Council Schedules Third Annual Meeting in Sacramento January 25-26

With emphasis on community teamwork, the California Rural Health Council will hold its Third Annual Conference on Rural Health in the Senator Hotel, Sacramento, January 25-26. All persons interested in rural health are invited to attend.

This year's theme is "Health Dividends Through Community Teamwork." Topics for discussion will include:

How Good is Rural Health?
Are You Safe at Home?
Solving Your Hospital Problems
What's New in Health Insurance?
Lassen County Citizens Look at Health

More detailed program information will appear in the January 1st issue of *California's Health*.

Agency members of the California Rural Health Council are the California Medical Association, the California Academy of General Practice, the California Congress of Parents and Teachers, the California Farm Bureau Federation, the University of California Agricultural Extension Service, the University of California School of Public Health, and the California State Department of Public Health. N. D. Hudson, of the U. C. Agricultural Extension Service, is Council Chairman.

Summary of Occupational Disease Due to Agricultural Chemicals

Pesticides and agricultural chemicals, however valuable to the economy of the State, constitute an ever-increasing public health problem because of their toxic nature and widespread use. In 1955, it is estimated, at least 8,402,000 acres were treated for agricultural pest control in California. An acre is counted each time it is treated. Sales of fertilizers reached an all-time high of 976,160 tons.

Since 1950 the California State Department of Public Health, through an agreement with the Department of Industrial Relations, has summarized reports of occupational diseases attributed to pesticides and agricultural chemicals. The following are excerpts from the report for 1955.

There were 531 reports of occupational disease attributed to pesticides and agricultural chemicals among 42 of California's 58 counties. The San Joaquin Valley area with 40 percent of the State's farm employment accounted for 38 percent of the cases; Southern California, exclusive of Los Angeles and San Diego, with nearly 20 percent of the State's farm employment accounted for 24 percent of the reports.

Of the total number of occupational diseases attributed to pesticides and agricultural chemicals, 46 percent were reported as dermatitis, 34 percent as systemic poisoning, 11 percent as respiratory illness and 8 percent as other conditions, primarily chemical burns.

In one-third of the reports the physician could not, or did not, identify the offending chemical. Of those chemicals which were identified, organic phosphate pesticides and halo-

genated hydrocarbon pesticides were the largest categories, 28 percent and 10 percent, respectively, of the total number of reports.

Forty-eight percent of the reports recorded lost time of a day or more as compared to 27 percent for all the occupational disease reports in 1955.

Two fatalities attributed to agricultural chemicals were recorded in 1955. An employee of a trucking company and his employer were fatally poisoned while cleaning out a truck tank which had been used to haul a chlorate-metaborate weed killing solution. The employer did not associate his employee's illness with the cleaning operation and re-entered the tank subsequently succumbing to the effects of the poison.

Diatomaceous Earth Study Reports Possible Hazard to Employee Health

Current studies of the diatomaceous earth industry in Southern California report some abnormal findings in chest X-rays of employees exposed to quarry dust, and in the packaging and carloading of the finished product.

The health hazard considered to be of great importance to workers in dusty occupations is the risk of developing a pneumoconiosis (lung disease) after more or less prolonged exposure to dusts containing certain forms of free silica.

Diatomaceous earth, which is used in the manufacture of filters, paints and building materials, contains free silica in several forms, depending upon its source and treatment. Since California is one of the few locations in the United States where major production of this natural material occurs, the State Department of Public Health, the industry, and the U. S. Public Health Service in 1952 undertook a study of the potential health hazards to workers.

The study, designed to determine and measure the potential risk to the health of employees by exposure to diatomaceous earth dusts, is following two major fields of investigation: (1) an assay and measurement of the kinds and concentrations of dusts to which several categories of workers are exposed, and (2) an evaluation of the effects of such exposures upon worker health.

Extensive engineering studies have been conducted of the operation and processing of three California plants, including repeated and intensive sampling of dust concentrations to which workers are exposed. In all, more than 700 samples have been collected and analyzed. Concurrently, complete medical studies, including repeated chest X-rays electrocardiograms, blood and skin tests, have been made of the approximately 1,000 workers in California.

The studies to date indicate that, in the absence of proper control, an important health hazard may exist to employees in the industry.

As the studies have progressed, the findings have been turned into practical application to eliminate the hazard to health. In every instance, the industry has been quick to apply methods of engineering control and medical supervision as the necessity for these measures became clear. The work of further extending environmental and personal controls continues at the present time.

While the study has been most productive to date, it is clear that not all problems have been resolved by the method of investigation used. Many questions can be answered only by forward-looking study the next several years. Such studies on a limited scale are now underway, based principally upon serial X-rays for all employees, including those who have changed occupation. From these studies it is hoped to answer questions about the progression or arrest of the abnormal X-ray findings already noted, and to study in greater detail the extent of disability which may arise from dust exposures encountered in the past.

In the 10 years between 1944 and 1954 death rates from influenza dropped 91 percent; from appendicitis, 76 percent; from syphilis, 63 percent; from acute nephritis and other kidney diseases, 60 percent; and from pneumonia, 43 percent.—*New York Times*, July 22, 1956.

During the decade 1945-55, domestic consumption of penicillin was nearly 3,000 tons or 3,000 trillion units.—*New York Times*, July 22, 1956.

Study of Cancer Death Rates Shows Trends, 1910-1954

The Bureau of Records and Statistics of the California Department of Public Health has recently completed a study of cancer mortality in California covering the 45-year period from 1910 through 1954. The study provides information on trends in death rates by sex and site.

From 1910 to 1954 cancer deaths in California have increased numerically more than eightfold. It is recognized that most of this increase, from 2,062 in 1910 to 17,681 in 1954, reflects increased population, a greater proportion of persons in older age groups, and improved knowledge and diagnosis of the disease.

While cancer occurs in persons of all ages and is the second leading cause of death in every age group from five to 84, the death rates are considerably higher for persons in the older age groups. In order to increase the comparability of death rates over a period of time, therefore, it is advisable to adjust for the changing age distribution of the population by using a standard population. Such age-adjusted rates have been used in this study.

From 1910 to 1954 the total adjusted cancer death rates do not vary widely (see table). The slight decline in total rates from 1940 to 1954 is probably due more to changes in the method of coding causes of death than to actual decreases in death. When total cancer rates for male and female are compared, however, the male rate increased from 1910 to 1954 while the female rate declined for the same period.

Greater differences in cancer rates also occur when specific sites are compared. Sizable declines are evidenced in deaths from stomach cancer from 1930 to 1954. For these years, stomach cancer declined for both males and females in similar ratios, although this site is a more frequent cause of death among males. Another site exhibiting some decline in rate is cancer of the female genital organs and breast cancer.

The most marked increase in rates by site is for cancer of the lung. Lung cancer accounts for the bulk of all respiratory deaths and has a 1954 rate over twice as large as the 1940 rate. Males show significantly greater in-

Rena Haig to Retire

Miss Rena Haig, Chief, Bureau of Public Health Nursing, California State Department of Public Health, will retire effective February 1, 1957. Miss Haig has been chief of the bureau for the past 20 years. Miss Edna J. Brandt, assistant nursing chief of the Washington State Department of Public Health, will succeed Miss Haig. She will assume her duties on February 1st.

Miss Haig is a graduate of the University of North Dakota and took her nurse's training at Bellvue Hospital, New York City. She received her masters in public health nursing in 1940 at Teachers College, Columbia University.

Miss Haig's public health career spans more than 20 years, during which time she has been active as a teacher, nurse, Red Cross public health nurse and in the development of public health nursing in the State. She is a member of the American Nurses Association, the American Public Health Association and is a member of the National Nursing Advisory Committee of the American Red Cross.

She plans a European tour next year and will attend the International Congress of Nurses in Rome next April.

Miss Brandt, prior to her present position with the Washington State Health Department, was assistant chief nurse in the Tuberculosis Nursing Service of the U. S. Public Health Service, and served with UNRRA and the Office of Inter-American Affairs previous to that.

She received a Bachelor of Science in Nursing and her master's degree in public health nursing at the University of Washington.

Miss Brandt is a member of the American Nursing Association, the National League for Nursing and the American Public Health Association.

Increases in death from lung cancer than do females, the male rate increasing over 200 percent from 1940 to 1954 as compared to 33½ percent for females.

Public Health Positions

Contra Costa County

Physical Therapist: Salary range, \$377-453. Vacancy at the Shadelands School in Concord. Requires California registration. Apply Contra Costa Civil Service, Box 710, Martinez.

Humboldt County

Public Health Nurses: Salary range, \$392-491. Two positions open. Generalized program with some school nursing. Car furnished. California registration and California driver's license required. Apply to Dr. L. S. McLean, Director, Humboldt-Del Norte County Health Department, P. O. Box 857, Eureka.

Merced County

Public Health Nurse: Salary range, \$341-415. Public health nurse certificate required. Write Andrew F. Murphy, County Administrative Assistant, Courts Building, Merced.

Sanitarian: Salary range, \$325-395, may be employed above first step. California registration required. Apply Merced County Personnel Department, Courts Building, Merced.

Orange County

Medical Officer: Salary range, \$992-1,236. In charge of tuberculosis control. Requires registration, or eligibility for, with American Board of Internal Medicine or M. P. H. Apply Orange County Personnel Department, 644 North Broadway, Santa Ana.

Placer County

Sanitarian: Salary range, \$325-395. Applicant must be a registered sanitarian. Car required, 8 cent mileage allowance. Rural county in Sierra foothills. Ruth M. Moldenhauer, M.D., Director of Public Health, Placer County Health Department, Auburn.

Stanislaus County

Public Health Laboratory Bacteriologist: Salary, \$330. County retirement system; California certificate required. Write to Dr. Irena A. Heindl, P. O. Box 1607, Modesto.

Marin County

Public Health Bacteriologist: Salary range, \$381-476. Position open December 21st. County merit system in effect. Laboratory employs only one technician. Required: California certification as Public Health Bacteriologist; automobile and valid California driver's license. Apply to: Marin County Administrator, 1000 Fifth Avenue, San Rafael, California.

The general practitioner is continually on the alert for opportunities to prevent disease and disability among his individual patients; the public

health physician's primary responsibility is with the group. * * * From these combined efforts, the maximum number of families enjoy the lasting

benefits of preventive medicine applied to the individual and public health measures in the community.—Dr. Herman E. Hilleboe, Health Officers News Digest, 9-56.

**COMPARATIVE DATA FOR CARE OF SELECTED NOTIFIABLE DISEASES, CALIFORNIA
MONTH OF OCTOBER, 1956**

Diseases	Cases reported this month			Cumulative cases from		
	1956	1955	1954	1956	1955	1954
Anthrax	—	—	—	—	—	—
Botulism	1	—	—	5	1	4
Brucellosis	4	4	3	24	48	37
Coccidioidomycosis ¹	35	22	15	158	120	63
Diarrhea of newborn	5	—	—	11	18	9
Diphtheria	2	—	8	28	16	24
Encephalitis, acute ²	49	30	101	476	341	602
Gonococcal infections	1,663	1,075	1,206	12,827	12,315	13,622
Hepatitis, infectious	211	150	109	1,639	1,571	1,826
Hepatitis, serum	7	2	2	77	47	42
Leprosy	1	2	2	8	17	11
Leptospirosis	—	—	—	3	2	2
Malaria	4	2	5	43	29	35
Measles	464	598	533	30,353	66,341	57,817
Meningococcal infections	8	11	23	204	211	257
Mumps	1,156	1,793	1,135	31,405	30,141	28,697
Pertussis (whooping cough)	180	265	429	1,904	4,596	3,963
Poliomyelitis—total	308	250	471	1,955	1,644	4,044
Psittacosis	7	8	—	34	36	50
Q fever	1	4	NR	53	15	NR
Relapsing fever	—	2	—	—	3	1
Rabies, animal	16	50	9	262	307	71
Rocky Mountain spotted fever	—	1	—	2	4	1
Salmonellosis	98	118	105	971	858	710
Shigellosis	187	143	119	1,480	1,033	847
Streptococcal infections (including scarlet fever)	356	288	337	4,480	6,437	7,136
Syphilis	2,715 ³	512	610	8,201 ³	5,719	5,920
Tetanus	3	2	5	26	30	37
Trachoma	—	1	—	4	7	24
Trichinosis	—	4	5	9	8	34
Tuberculosis	718	570	501	6,105	6,095	6,492
Tularemia	—	1	1	4	4	11
Typhoid fever	9	15	11	88	86	95
Typhus fever, endemic	1	1	—	3	2	3

¹ Since July 1, 1955—Active primary (including cavitory) and disseminated coccidioidomycosis reportable.

² Encephalitis, acute includes arthropod-borne infections, post infectious cases, and those with etiology undetermined.

NR—Not reportable prior to July 1, 1955.

³ Includes 2,116 cases from special serologic survey (Mexican National farm workers).

⁴ Includes 2,620 cases from special serologic survey (Mexican National farm workers).

The average life expectancy at birth for American workers is now 69.9 years, insurance figures show.—*Science News Letter*, 67:10:160.

Health is a basic or fundamental right of all the people, but it has to be won.—Dr. Ira V. Hiscock.

GOODWIN J. KNIGHT, Governor
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State Director of Public Health

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